

WHAT IS CLAIMED IS:

1. A touch fastener comprising
a female fastener component in the form of a flexible material carrying a field of fibrous loops; and
a male fastener component comprising a flexible web carrying a multiplicity of loop-
5 engageable fastener elements extending from an exposed surface of the male fastener component in a fastening area;
the female and male fastener components each permanently arranged on a product in spaced apart relation and positioned to be overlapped to form a releasable fastening that resists shear force applied in a primary shear loading direction; wherein
10 one of the flexible material of the female fastener component and the flexible web of the male fastener component comprises an elastic material; and wherein
the fastening area comprises one or more discrete regions bounded by exposed areas of the web void of fastener elements, the fastening area defining a fastening centroid along an axis extending in the loading direction, the fastening area arranged asymmetrically about the
15 axis so as to induce a twist in the fastening in response to shear force applied in the loading direction.
2. The touch fastener of claim 1 wherein the flexible web of the male fastener component is elastic, the male fastener component comprising a layer of relatively non-extensible resin permanently secured to the web and from which the fastener element stems are integrally molded.
3. The touch fastener of claim 2 wherein the fastening area comprises multiple discrete regions each bounded by exposed areas of the web void of the layer of resin.

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4. The touch fastener of claim 3 wherein the flexible web is resiliently stretchable between the discrete regions of the fastening area in the loading direction.

5. The touch fastener of claim 2 wherein the layer of resin is permanently bonded to the flexible web in the fastening area by resin of the layer encapsulating fibers of the flexible web.

5 6. The touch fastener of claim 5 wherein the fastener elements have individual stems integrally molded with the resin encapsulating the flexible web fibers.

10 7. The touch fastener of claim 5 wherein the layer of resin encapsulates the flexible resin to form a local backing on a side of the flexible web opposite the fastener elements.

8. The touch fastener of claim 5 wherein the flexible web has a side opposite the fastener elements and void of the resin layer.

15 9. The touch fastener of claim 2 wherein the flexible web comprises a sheet of elastomeric resin, to which the layer of relatively non-extensible resin is bonded in the fastening area.

20 10. The touch fastener of claim 2 wherein the flexible web comprises a woven material that is resiliently stretchable at least in the loading direction.

11. The touch fastener of claim 1 wherein the flexible material of the female fastener component is elastic.

25 12. The touch fastener of claim 11 wherein the flexible material of the female fastener component comprises a woven material that is resiliently stretchable at least in the loading direction.

30 13. The touch fastener of claim 1 wherein the elastic material is resiliently stretchable in the loading direction.

14. The touch fastener of claim 1 wherein the fastening area comprises multiple discrete regions each bounded by exposed areas of the web void of fastener elements.

5 15. The touch fastener of claim 14 wherein the fastening area comprises two such discrete regions, disposed on opposite sides of the axis.

10 16. The touch fastener of claim 1 wherein the fastening region is L-shaped, with a longer side of the region extending predominantly in the loading direction.

15 17. The touch fastener of claim 1 wherein the fastener elements have individual stems integrally molded with and extending from a surface of the flexible web.

15 18. The touch fastener of claim 17 wherein the fastener elements each have loop-engageable heads disposed at distal ends of their stems and laterally overhanging the flexible web.

19. The touch fastener of claim 18 wherein the heads are integrally molded with their stems.

20 20. A garment having a releasable closure comprising the touch fastener of claim 1, wherein the male and female fastener components are spaced apart on the garment and arranged to be overlapped in releasable engagement to secure the garment about a wearer, with the fastening area arranged asymmetrically about a line extending through the centroid of the fastening area in the primary shear loading direction.

25 21. The garment of claim 20 comprising a disposable diaper.

22. The garment of claim 20 wherein the closure is arranged to be positioned along a waist of the wearer as the garment is worn.

23. The garment of claim 20 wherein two such closures are positioned spaced apart along an edge of the garment and arranged to each locally induce a twist in the fastening, in response to shear force applied across the edge of the garment, to resist bowing of the garment edge between the closures.

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24. A releasable adhesive fastener, comprising an adhesive fastener component comprising a flexible web carrying a layer of adhesive in a fastening area; a landing web with an exposed fastening surface configured to releasably adhere to the adhesive when the adhesive is brought into direct with the exposed surface; the adhesive fastener component and exposed fastening surface each permanently arranged on a product in spaced apart relation and positioned to be overlapped to form a releasable fastening that resists shear force applied in a primary shear loading direction; wherein one of the flexible web of the adhesive fastener component and the landing web comprises an elastic material; and wherein the fastening area comprises one or more discrete regions bounded by exposed areas of the flexible web void of adhesive, the fastening area defining a fastening centroid along an axis extending in the loading direction, the fastening area arranged asymmetrically about the axis so as to induce a twist in the fastening in response to shear force applied in the loading direction.

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25. A garment having a releasable closure comprising the adhesive fastener of claim 24, wherein the adhesive and fastening surface are spaced apart on the garment and arranged to be overlapped in releasable engagement to secure the garment about a wearer, with the fastening area arranged asymmetrically about a line extending through the centroid of the fastening area in the primary shear loading direction.